Message

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Subject: STICS: Clearance Completion: #ORD-026555: Temporal Trends in Exposures to Six Phthalates from Biomonitoring Data: Implications for Cumulative Risk

The clearance for this Human Health Risk Assessment product is complete:

- **Product type, subtype:** Journal Article, Peer Reviewed
- **Product title:** Temporal Trends in Exposures to Six Phthalates from Biomonitoring Data: Implications for Cumulative Risk
- **Author(s):** Reyes, J and P. Price
- **Initiator:** PaulS Price,ord/nerl/ced
- **ORD Tracking Number:** Tracking # ORD-026555
- **Impact / Purpose Statement:** Cumulative exposures to phthalates have been identified an important research issue by the National Academies of Sciences. This publication demonstrated that measures of hazards from phthalates predicted from NHANES biomonitoring data, have declined substantially over the last 10 years. However, future assessments of the remaining exposures will require cumulative exposure assessments in order to properly define risks.
- **Product Description / Abstract:** Phthalates are used in a wide range of consumer goods, resulting in exposures to specific phthalates that vary over time in accordance with changes of product use and how phthalates are used in products. We investigated trend in estimates of daily dose and several cumulative risk metrics, including Hazard Quotient (HQ), Hazard Index (HI), and Maximum Cumulative Ratio (MCR), for six phthalates over the period of 2005 to 2014 using metabolite biomonitoring data collected under the National Health and Nutrition Examination Survey (NHANES). Over this period, there is a 2.2-fold decrease in the mean HI (0.34 to 0.15) and a 7.2-fold decrease in the percentage of participants with an HI>1 (5.7% to 0.8%), indicating an overall decrease in combined exposure to the phthalates. Children (aged 6-11 years) had higher HI values than either adolescents (aged 12-19 years) or adults (aged 20+ years) during this period. MCR values were generally low and inversely correlated with HI. This indicated that a single phthalate usually drove the hazards for highly exposed individuals. However, the average value of MCR increased 1.2-fold (1.7 to 2.1) over this period indicating an increasing need to consider exposures to multiple phthalates in this group.
- **Tracking and Planning**
  - Task ID: 3.232
  - Task: Incorporating Multiple Stressors
  - Product Title: N/A - Not Applicable
  - Product Description: N/A - Not Applicable
  - Project: Cumulative Risk Assessment Methods and Applications
  - Topic: Community and Site-specific Risk
  - Research Program Area: Human Health Risk Assessment

- **Product Category:** Does not require Advance Notification
- **QA form attached in STICS?:** Yes
- **QAPP Reference:** QAPP: The Determination of Cumul. Risk to Phthalates from Biomontoring Data June 10, 2107
- **Keywords:**
    - Combined exposures
    - Maximum Cumulative Ratio
    - Modeling
    - Children's Environmental Health

- **Journal Name:** ENVIRONMENTAL SCIENCE & TECHNOLOGY
- **DOI:** https://doi.org/10.1021/acs.est.8b03338
- **Published Date:** 11/06/2018

This submission can be found in the History tab. Please click here to access STICS.